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ABSTRACT

As an integral part of American life, technology is expected to accomplish a variety of tasks, including promoting the educational development of children. To accomplish this task, technology must deal with the challenge of connecting the two major institutions of learning for children: families and schools. Surveys indicate that while most Americans believe a strong family-school connection is important, they do not act to support that belief. Contemporary models of the family-school connection focus on a number of different factors and cover a multitude of investigative perspectives. Causal models focus on factors that directly or indirectly influence educational and social outcomes, while practices models refer to how families and schools work together to support student outcomes. Technology in both models has indirect effects on student outcomes. A number of projects have studied the influence of technology, including Project TELL, ThinkLink, Lightspan Partnership, and the Indiana Buddy System. Analysis of these projects indicates that technology can serve the family-school connection in four areas: (1) communication and information, (2) learning and instruction, (3) interest and motivation, and (4) resources and costs. (Author/LPP)

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The Family–School Connection and Technology

Jay Blanchard ■

Abstract

As an integral part of American life, technology is expected to accomplish a variety of tasks, including promoting the educational development of children. To accomplish this task, technology must deal with the challenge of connecting the two major institutions of learning for children: families and schools. Surveys indicate that while most Americans believe a strong family–school connection is important, they do not act to support that belief. Contemporary models of the family–school connection focus on a number of different factors and cover a multitude of investigative perspectives. Causal models focus on factors that directly or indirectly influence educational and social outcomes, while practices models refer to how families and schools work together to support student outcomes. Technology in both models has indirect effects on student outcomes. A number of projects studied the influence of technology, including Project TELL, ThinkLink, Lightspan Partnership, and the Indiana Buddy System. Analysis of these projects indicates that technology can serve the family–school connection in four areas: (1) communication and information, (2) learning and instruction, (3) interest and motivation, and (4) resources and costs.

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Introduction

Technology is one of the most fascinating and modern aspects of life today. Its relentless innovative spirit has placed it almost everywhere. Regardless of the home, school, or community where it is used, technology seems to have the same vitality and forceful attention-gathering effects. People enjoy it. They respond to it. They expect it. For them, technology seems to have few limitations and almost magical strength.

Today, most children of school age, their parents, and their teachers have spent a large portion of their lives using technology—whether it is looking at screens, listening to music, or talking on telephones. Technology has come to dominate American life and is an integral part of American life. As a result, modern technology is seen by many as a new Prometheus: the creator of a modernistic order. But this inclination to ascribe mythical powers to technology presents technology with monumental tasks that it is expected to accomplish under a variety of dazzlingly difficult and almost impossible conditions. One of these tasks is nurturing the moral, social, and educational development of American children. To accomplish this task, technology must deal with the challenge of connecting the two major institutions of learning for children: families and schools. Nothing could be more difficult.

Connecting Families and Schools

Connecting families and schools means that characteristics, beliefs, and practices of everyone from these institutions affect the moral, social, and educational development of children. Simply put, the family–school connection means that homes and schools are connected and linked in service of students—and these connections and links have important affects for children (Booth & Dunn, 1996; Swap, 1993; Bronfenbrenner, 1979, 1986; Epstein, 1996; Featherstone, 1976; Lareau, 1989; Lightfoot, 1978; Ryan & Adams, 1995; Scott-Jones, 1995; Steinburg, 1996; Hoover-Dempsey & Sandler, 1995; U.S. Department of Education, 1994).

While this explanation seems simple and perfectly understandable, it is, unfortunately, troublesome. Why? First, understanding the family–school connection is a formidable challenge because parked inside the connection is a network of remarkably

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complex relationships between two complex institutions. The power of these relationships and institutions is that they can work together in different ways to help children. Second, the term itself, the family–school connection, covers a multitude of perspectives and stakeholders. For example, historically the study of families and schools has been dominated by educators and sociologists. Educators have tended to focus on what the schools can do for the family, and sociologists have tended to focus on what the family can do for the schools. These perspectives have tended to balkanize investigative perspectives and stakeholders into camps that the reader must keep in mind when examining investigations of the family–school connection. As a result, there are a wide variety of issues that can be considered the family–school connection despite their having little to do with the influences of families and schools on children (see also Bierman, 1996). Keeping this fact in mind, the discussion will next turn to the importance of the connection, including models, a review of technology studies, and what current technology might do to help the family–school connection.

The Importance

The family–school connection, a field of study that did not exist before the 1960s, can claim two founders: (1) the Elementary and Secondary Education Act of 1965 (ESEA), which specified that parents were expected to assume a more direct role in their children's formal education; and (2) the Civil Rights Act of 1964, Section 402, and the resulting research by James S. Coleman on the importance of family in the education of disadvantaged children (Coleman et al., 1966). Since that time, researchers have struggled to map the family–school connection and understand how all the relationships fit together. Much has been learned about the effects of schools on student outcomes and the effects of families on student outcomes, but not much is known about the relationships between the two.

Despite this difficulty, the assumption is that positive family–school connections help ameliorate a lot of negative factors that affect student outcomes. The American public seems to agree with this assumption. The 29th Annual Phi Delta Kappa/Gallup Poll (Rose, Gallup, & Elam, 1997) found that 86% of the public believe that parental support is the most important factor in determining a school's success. A review of data from the largest survey undertaken in American history related to the family–school connection, namely, the National Education Longitudinal Study of 1988 (NELS:88), clearly points to one factor that promoted educational success—the degree to which parents are actively involved in their children's education.[1]

It has not gone unnoticed by politicians, government agencies, universities, and foundations that Americans support the concept of parents being actively involved in their children's education (Wall Street Journal/NBC News Poll, 1997). The Educate America Act of 1994: Goals 2000 set out eight goals and established mechanisms to reach them. The eighth goal is: By the year 2000, every school will promote partnerships that will increase parental involvement and participation in promoting the social, emotional, and academic growth of children. Also in 1994, the U.S. Department of Education's publication entitled *Strong Families, Strong Schools* documented the research base supporting the importance of the family–school connection in student outcomes. "Three decades of research have shown that parental participation improves students' learning. This is true whether the child is in preschool or the upper grades, whether the family is rich or poor, or whether the parents finished high school" (p. 2).

The U.S Department of Education was not alone in investigating the role of families and the family–school connection in student outcomes. The National Committee for Citizens in Education also sponsored a comprehensive review of available research. Their review, entitled *The Family Is Critical to Student Achievement* (Henderson & Berla, 1994), concluded that:

> When schools work together with families to support learning, children tend to succeed not just in school, but throughout life. Children profit because of: (a) higher grades and test scores, (b) better attendance and more homework done, (c) fewer placements in special education, (d) more positive attitudes and behavior, (e) higher graduation rates, (f) greater enrollment in post secondary education. Parents profit because of: (a) more confidence in the schools, (b) teachers have higher opinions of parents, (c) teachers have higher expectations for students, (d) more confidence about helping their children and about themselves as parents. Teachers and schools profit because of: (a)

> Improved teacher morale, (b) higher ratings of teachers by parents, (c) more support from families, (d) higher student achievement, (e) better reputations in the community. (p. 1)

A very recent example provides testimony to the continued importance of the family–school connection in the minds of Americans. The New York State reading and mathematics school-by-school evaluation reports revealed that three schools (i.e., P.S. 29 and 88, Bronx; P.S. 31, Brooklyn), with high poverty and limited English proficiency (LEP) levels among students, outperformed other schools with similar backgrounds and many schools where poverty and LEP levels were not a concern. These schools had four common characteristics: "a clear sense of mission, a consistent curriculum, strong parent involvement, and a willingness to solve their own problems" (Hernandez, 1997, p. A10). While the family–school connection was only one of the ingredients affecting student outcomes at these schools, nevertheless it was a necessary part of the successful mixture.

In summary, what all this information points to is the commonsense notion that Americans are interested in a strong family–school connection, meaning that when both parents and teachers are involved in children's education at home and at school, everyone profits. Yet, there is a paradox. While most Americans support the idea of a family–school connection (Lou Harris and Associates, 1993), in reality too many parents do not practice the idea (see Hoover-Dempsey & Sandler, 1995, for a rationale). For instance, NELS:88 found that only 53% of parents contacted school about their child's academic performance during the year, and only 32% reported they belonged to a parent–teacher group with about 10% of those claiming to have attended meetings (Kerbow & Bernhardt, 1993).[2] The NELS:88 results appear to be confirmed in the recent *Survey on Family and School Partnerships, K–8* (also titled *Parents and Schools: Partners in Student Learning*, U.S. Department of Education, 1996). The survey found that only about 49% of all the 810 elementary schools polled reported that most or all of parents attend open house or back-to-school night, only about 57% attend parent–teacher conferences, 36% attend arts events, and 19% attend science fairs or academic demonstrations. When the survey data are examined for schools from minority and poor neighborhood schools, only about 30% report that most or all parents attend open house, 37% attend parent–teacher conferences, 17% arts events, 5% sports events, and 3% academic demonstrations.

Models

Contemporary models of the family–school connection focus on a number of different factors, and as noted earlier, the models cover a multitude of investigative perspectives and stakeholders—all of which can fit under the umbrella term of the family–school connection (Ryan & Adams, 1995; see Epstein, 1992; Swap, 1993, for discussions of historical models). Most models of the family–school connection can be forced into two categories: (1) causal models and (2) practices models. Causal models focus on factors that directly or indirectly influence or cause educational and social outcomes (Epstein, 1990; Eccles & Harold, 1996; Ryan & Adams, 1995). Practices models, as the term implies, refer to how families and schools can work together to support student outcomes (Epstein, 1992; Lombana, 1983; Swap, 1993).

Causal Models

One of the most cogent causal models of the family–school connection is offered by Joyce Epstein, an authority in the field and former director of the National Center on Families, Communities, Schools and Children's Learning. The Epstein (1990) model "views the shared responsibilities of families and schools as a set of overlapping spheres of influence that alter the interactions of parents, teachers and students, and other members of the two institutions and affect student learning and development" (p. 100). The model includes three major forces that influence student outcomes: (1) time—to account for changes in the ages and grade levels of students and the influence of the historic period; (2) the philosophies, policies, and practices of the family; and (3) the philosophies, policies, and practices of the school.

Another influential causal model by Eccles and Harold (1996) focuses on factors in the child's environment (i.e., parent/family, neighborhood, teacher, school) as well as teacher and parent beliefs and practices that affect student outcomes. According to Eccles and Harold (1996), the effectiveness of this model has been successfully tested in the Michigan Childhood and Beyond Study (MCABS) and the Maryland Adolescent Growth in Context Study (MAGICS).

The Ryan and Adams (1995) causal model focuses on within-the-family factors that affect student outcomes. "The model is not intended to account for all the ways family members or other social agents, such as peers or teachers, could influence children's outcomes" (p. 7). The model includes the following factors: (a) abilities within the child, (b) parent and child interactions with respect to school and nonschool issues, (d) interactions beyond just the parent and child, (e) interaction processes that characterize the family, (f) parents' beliefs and actions, and (g) social/cultural and biological characteristics.

Practices Models

Practices models are just that—models about practices that help families and schools work together. Epstein's (1996) model or framework contains six categories of practices that will help schools "work with families and communities to assist them to become or stay informed and involved in children's education at home and at school" (p. 215). The six categories are: (1) parenting, (2) communicating, (3) volunteering, (4) learning at home, (5) decision making, and (6) collaborating with community. By way of a brief overview, parenting refers to helping families establish home environments to support children as learners. Communicating means effective forms of school-to-home and home-to-school communications about school programs and children's progress. Volunteering is about recruiting and organizing parent help and support. Learning at home provides information and ideas to families about how to help students at home with homework and other curriculum-related activities, decisions, and planning. Decision making is about including parents in school decisions and developing parent leaders and representatives. And, finally, collaborating with the community means identifying and integrating resources and services from the community into school programs, family practices, and student learning and development.

Swap (1993) offers a practices model that features four elements: (1) creating two-way communication, (2) enhancing learning at home and at school, (3) providing mutual support, and (4) making joint decisions. Swap suggests this model for schools where "most children are not doing well in school, the population of children and families is heterogeneous, and there is a lack of agreement among families and educators about the definition of success in school and the characteristics of children and schools that contribute to success" (p. 48).

The Scott-Jones (1995) practices model is a within-the-family model. It focuses solely on family practices that affect student outcomes. The model offers four categories of practices: (1) valuing, (2) monitoring, (3) helping, and (4) doing. In the model, valuing refers to the direct and indirect communication of the value of education by parents or the family. Monitoring refers to parents or the family monitoring school performance and activities that can enhance or diminish achievement. Helping refers to parents or the family acting as teachers and tutors in a wide variety of learning situations. Probably the most common example is a parent or other family member reading with a child. Doing refers to parents and family members actually doing school activities for children.

A Final Note on Models

All causal and practices models of the family–school connection discuss direct and indirect effects on student outcomes. But technology as a variable in both models can only have indirect effects on student outcomes because technology is a tool that depends entirely upon the nature of the content it is associated with. But that does not mean that indirect effects are powerless in affecting student outcomes. Quite the contrary. What it means is that the match between the content and student outcomes will determine the power of the indirect effects. Consider two examples: *Sesame Street* and *Reading Rainbow*. If the producers of the TV program *Sesame Street* focus on a particular reading skill known to be included in reading achievement measures (e.g., graphemic bases or word families), then the program content and the associated technology will have more immediate and powerful indirect effects. In essence, the more proximal the program content of *Sesame Street* is to achievement measures, the more chance it, and its associated technology, will affect student outcomes associated with those measures.

In the case of a TV program like *Reading Rainbow*, the program content is likely to be distal to achievement measures—and planned that way. Obviously, technology associated with content that is distal to achievement measures is less likely to have an impact on student outcomes involving those measures (see Ryan & Adams, 1995, for a discussion). Of course, the tricky part is deciding

what are the desired student outcomes and how to measure them.

The Family–School Connection and Technology

For all children in America, the family–school connection does not take place in the absence of technology. U.S. Census and Department of Education data (U.S. Department of Education, 1995, 1997a) indicate that most American families and schools have access to telephones and TVs—two of the four major ingredients of the information superhighway along with computers and access to networks such as the Internet. Schools have access to even more technology than homes. In the *Advanced Telecommunications in U.S. Public Elementary and Secondary Schools, Fall 1996* survey, 74% of schools reported "using" advanced telecommunications to access information, 67% reported use for record keeping within the school or district, 22% reported use for parent communication, and 22% reported use for distance learning (U.S. Department of Education, 1997a).[3] The data reported for teachers were somewhat different. According to the survey, 20% of schools surveyed reported that teachers regularly used advanced telecommunications for teaching, 16% for staff development, and 15% for curriculum development.

Several explanations about these data are important to gain a sense of their meaning. First, it was a randomly stratified sample of 911 schools. Second, the term *advanced telecommunications* refers to broadcast TV, cable TV, Internet, local and wide area networks, as well as one-way or two-way audio, video, or computer links—not standard telephone or fax. Finally, the survey questionnaire was sent to school principals who were directed "to forward the questionnaire to the computer or technology coordinator or to whomever was most knowledgeable about the availability and use of advanced telecommunications at the school" (p. 12). It is unknown who completed the questionnaire at each school and the degree to which it was "politically correct" to indicate the use or nonuse of technology.

Family–School Connection and Technology Research

Evaluating the effectiveness or impact of technology in the family–school connection can be troublesome. As noted in the U.S. Department of Education (1997b) report entitled *The Effectiveness of Using Technology in K–12 Education: A Preliminary Framework and Review*, evaluating technology in K–12 education is not an exact science. The report identifies five challenges.

- Distinguishing hype, assertions, hopes, and expectations from rigorous research results.
- Evaluating a moving target (technology is changing rapidly).
- Evaluating the potential impact of the use of technology when there are few, if any, settings in which it is being used optimally.
- Generalizing from one type of technology to another, from one subject matter to another, from one type of student to another.
- Determining the appropriate outcomes to measure. (p. 4)

Not surprisingly given these and other challenges, only a few projects are available for analysis about the family–school connection and advanced technology (e.g., *Project TELL*, Birenbaum, Hochwald, & Kornblum, 1994; *ThinkLink*, Cline, Omanson, & Sisung, 1994; *Lightspan Partnership*, Godin, 1996; *The Buddy System Project*, Rockman & Mayer, 1994). While these studies use different technologies and methods, nevertheless they share a common interest in the family–school connection and technology.[4]

Project TELL

Project TELL began in 1990 and ended in 1993. It had three major initiatives: Computers in the homes, computers in the classrooms, and voice messaging. It was sponsored by NYNEX and the Board of Education of the City of New York. A total of six schools participated in the project, with five schools involved in one or two initiatives and one school participating in all three (Manhattan, P.S. 75).

In the Computers in the Homes initiative, computers (with modems and printers) were placed in the homes of 124 at-risk sixth-grade students in five schools. Students were given accounts to an electronic bulletin board, they were provided with weekly 2-hour user-group meetings staffed by teachers, and they were encouraged to use their bulletin board and e-mail by their teachers.

In the Computers in the Classrooms initiative, teachers working with approximately 500 at-risk students at three schools were given the technology and staff development necessary to use technology

in their classrooms. In addition, teachers were provided their own TELL technology for home use.

In the Voice Messaging initiative, classrooms and homes from P.S. 75 were connected so that administrators, teachers, students, and family members could communicate through voice messaging.

Combining the results from these initiatives, project evaluators offered the following conclusions (Birenbaum, Hochwald, & Kornblum, 1994). First, the innovative uses of the technologies in the projects were welcomed by the students and had a powerful influence upon their self-esteem and learning capacity. For example, time children spent on the bulletin boards increased the time they spent reading, writing, and learning cognitive and technical skills. Second, children involved were three times less likely than other children to move to another school. Typically, families in the neighborhoods that participated in the study changed homes and schools quite frequently. Third, a computer in the home proved to be an unexpected and welcome learning resource for family members. Fourth, Project TELL equipment was respected; during the three years that computers were in the homes, damage, theft, or loss of the equipment was nil. Fifth, teacher/staff development remained a major issue. Finally, voice messaging in the project proved to be an unqualified success.

ThinkLink

ThinkLink was a video-on-demand or prescheduled video project for selected fifth-graders, their families, and their teachers in Sterling Heights, Michigan. Ameritech (Michigan Bell) sponsored the project during 1993 and 1994. About 150 fifth-graders participated at two elementary schools (Thorpe, Jefferson Elementary). All homes and classrooms were connected by a custom-built fiber optic network to a central media server at one of the schools.

Cline, Omanson, and Sisung (1994) completed an evaluation of ThinkLink and concluded that ThinkLink affected students' home-viewing habits either by adding to their daily viewing time or by cutting into viewing time for noneducational programs, positively affected Michigan Educational Assessment Program Science Test scores, and positively affected motivation for schooling. For parents and teachers, ThinkLink positively affected their attitudes about the use of technology for learning.[5]

Lightspan Partnership

The Lightspan Partnership project featured state-of-the-art multimedia, PC/CD-based instruction with a K–6, reading, language arts, and mathematics curriculum. Godin (1996) completed a survey evaluation of the Lightspan Partnership project during the spring of 1996 in 81 elementary school classrooms nationwide that volunteered to participate. The evaluation surveyed 81 teachers in grades K–6 along with 445 families of children in their classrooms. Students, teachers, and parents used the Lightspan Partnership instructional activities both at home and at school throughout the spring of 1996.

Family survey data indicated that (a) 69% of children used the instructional activities an hour or more each day, (b) 72% of the parents claimed to have spent at least one-half hour or more with their children using them, (c) 52% of parents indicated that they spent the same amount of time daily using the activities on their own, (d) 60% of the parents indicated that talk at home between parent and child about schoolwork increased because of the project, and (e) 70% of parents indicated that their knowledge of what their child was doing in school increased. More anecdotal family survey data found that a majority of parents believed their children's interest and motivation toward school increased, and parents believed these increases resulted from fun and novelty effects of the activities.

Teacher survey data found that (a) 91% of teachers had some students working each day or every other day with the project, (b) 32% of teachers used the activities with students each day, (c) 75% of the teachers reported that they used the project with pairs of students or individually, and (d) 75% of teachers reported increased interest and motivation towards schoolwork as a result of the project.

The Indiana Buddy System Project

Buddy is a partnership of Indiana school districts, the state of Indiana, foundations, businesses, and the Corporation for Educational Technology (CET) that supports the use of technology in homes and schools for instruction and telecommunications. Buddy supports technology use by working with school districts to equip families and classrooms with computers, printers, and modems. School districts make decisions about how to use

technology. Buddy also provides staff development for teachers, technology training for parents, software catalogs, discounts on software purchases, newsletters, as well as a statewide network (BuddyNet). The project began in 1988 with 500 families and a few classrooms. Today, over 7,000 fourth-, fifth-, and sixth-graders at sites throughout Indiana participate along with their parents and teachers.

The most recent evaluation of Buddy available (Rockman & Mayer, 1994) found that students made improvements in writing, computer technology, critical thinking, problem solving, and collaborative activities with peers. Teachers reported changes in their instruction, especially with regard to the integration of technology in their classroom activities and improvement in communication with parents. Families reported strengthened family–school connections and an increased ability to assist in their children's education.

How Can Technology Help

For most homes and schools, the technologies of the information superhighway should help the family–school connection in the near future. In some cases, it is already happening. For example, since 1995, the U.S. Department of Education has funded 43 Challenge Grants for Technology in Education and continues to fund new grants. These grants include family–school connection emphases and should provide much-needed information on how technology can (and cannot) connect families and schools (Bodilly & Mitchell, 1997).

There would seem to be at least four ways that technology can serve the family–school connection: (1) communication and information, (2) learning and instruction, (3) interest and motivation, as well as (4) resources and costs.

Communication and Information

- Technology can help establish two-way communication between homes and schools. For instance, parents can learn about the daily academic responsibilities of their children and what teachers do everyday. Teachers can learn about the daily responsibilities of families at home and work.
- Technology can help discussions of school experiences within and among families and the community. One hopes these discussions will strengthen family and communities and improve their attitudes toward schools. These discussions are important for low-income families that tend not to develop social networks beyond the family.
- Technology can help schools involve families who are presently difficult to reach, and technology can help families involve schools that are difficult to reach. Some teachers may feel that family–school connection responsibilities are a burden and that parents will not be particularly responsive if they try to reach them. Some parents may feel the same way.
- Technology can help make communication easier. Many teachers do not live in the community where they teach, and many parents do not work in the community where their children go to school. Distance to school and work can be important factors that inhibit communication. Convincing everyone in the family–school connection to work together means they must all communicate. While technology cannot make anyone communicate, it can encourage them and make it easier if they do decide to try.
- Technology can help inform homes of school governance issues including shared decision making and advisory functions. This communication should help reduce fragmentation of programs, education, and social services. Technology can help schools and communities develop strategies and programmatic structures that enable parents to participate in the schools and teachers to participate in the communities.

Learning and Instruction

- Technology can help teachers and families acquire needed knowledge and skills. For instance, technology can help teachers augment their instructional skills and families augment their parenting skills.
- Technology can help build the capacity of schools to improve the educational health of the family and extend learning opportunities from the school to the home and family. For example, technology can help enhance the effectiveness of homework. Currently when homework is less than effective as learning experiences (i.e., students do not understand it or will not do it; parents will not supervise it; teachers do not explain it), the teachers blame

the students, the students blame the teachers, the parents blame everyone, and the school administrators run for cover.

- Technology can help parents act as instructors or coaches as well as learning partners. It can help augment parenting skills.
- Technology can support classroom teaching as well as review and reinforcement activities. Technology can help increase learning opportunities for individualized instruction, student-directed learning, teacher-directed learning, and peer-directed learning.
- Technology can provide "professional help" at home and school for everyone concerned with the family–school connection.
- Technology can help schools develop learning activities at home that provide meaningful roles for children and parents. Leisure-time activities of children from low-income families tend to be less informal and less related to learning than leisure-time activities of their middle- and upper-income peers. Technology can provide meaningful (and affordable) home-based learning activities.
- Technology can help explain and illustrate concepts that are difficult for teachers to teach, students to learn, and parents to understand. The use of simulations or slow-motion video are two examples. Practically, few schools and families would have the resources to duplicate most computer-based multimedia activities.
- Technology can help schools and families with educational alternatives and choices that expand and stretch their opportunities for learning. Also, given ever-limiting school and family budgets, technology can provide instructional resources (materials and methods) that are normally unavailable and perhaps emphasize prevention and education as opposed to treatment.
- Technology can help teachers and students organize and structure complex tasks while providing access to real-life phenomena. For example, simulations can provide learning situations that involve complex, dangerous, or previously unavailable phenomena.
- Technology can help schools and families use resource-rich informational environments like the Internet. These communication tools can promote both global and local collaboration.

Interest and Motivation

- Technology can help families and schools motivate children.
- Technology can provide ways for schools to connect with homes, and homes can use technology to connect with schools. For example, school factors are a primary influence on parent involvement—so make technology part of the practices that are used to encourage parent involvement. Technology may not only give teachers a chance to talk with each other but also families to talk with other families on a level not possible with the telephone. The bonus would be a collection of families and teachers across a school district, widely varied but united in support of student achievement.
- Technology can provide support and coordination for homes and schools to sustain involvement.

Resources and Costs

- Technology can help reduce the financial, emotional, time, and resource costs of educating children, easing burdens for homes and schools.
- Technology can help address issues of equality of resources and learning opportunities. Clearly schools draw unevenly on the resources of the home, and conversely the home draws unevenly upon the resources of the school. Technology can help to even out this imbalance.

In Conclusion

The family–school connection and technology is about using technology as a tool to develop and enhance the reciprocal influence of schools and homes on student outcomes. It means that homes and schools are connected and linked through technology—and these connections have important effects for everyone.

Technology presents an almost endless supply of fascinating opportunities for all stakeholders in student outcomes—including students—to help the family–school connection. But finding ways to connect and link all stakeholders in the family–school connection presents a set of stubborn and bedraggling problems that, so far, we have not been able to solve without technology. Add to these

problems the rapidly changing social, economic, educational, and political landscapes in which the family–school connection takes place—and technology has its hands full. Against this background, technology must be careful not to create its own myths (Cuban, 1986; Stoll, 1995).

While technology may seem like a single, unified, and almost mythic answer to the problems of the family–school connection and American education, of course it is not. Technology is only a tool—but a very powerful tool with a variety of solutions to a variety of problems. That is its strength.

Endnotes

[1]The NELS:88 survey was a national random sample of about 25,000 eighth-graders, parents, teachers, and school administrators in 1,000 public and private schools. The follow-up studies of 1990 and 1992 looked at a subsample of the original participants when the students were in tenth and twelfth grades, respectively. "NELS:88 was designed to examine student achievement over time and to focus on family, community, school, and classroom factors that may promote or inhibit educational success" (Schneider, 1993, p. 8). The NELS:88 data are especially important given the size and scope of the survey.

[2]It is important to note that the NELS:88 survey did provide some key information about factors that determine whether or not parents participate in the family–school connection; namely, their orientation toward education, their financial needs and resources, and their opportunities to participate (Schneider, 1993; see also Hoover-Dempsey & Sandler, 1995, for a discussion of why parents choose to become involved). Also, analysis of data is beginning (September 1997) from the National Longitudinal Study of Adolescent Health (a survey of 90,000 children and adolescents from 12–18). Initial analyses indicate that teenagers with close ties to family members exhibit fewer at-risk behaviors.

[3]The survey percentages for schools using advanced telecommunications in all categories did not change markedly from school to school due to school characteristics (instructional level, size of enrollment, metropolitan status, geographic region, minority enrollment, and free lunch eligible). In addition, uses of advanced telecommunications by category (access to information, record keeping, communication, and distance learning) due to school characteristics did not change much either. These results were also true for how teachers used advanced telecommunications (teaching, professional development, curriculum development) by school characteristics.

[4]An exception might be the use of telephone communication (i.e., voice messaging, attendance, schedules; see Bittle, 1975; Chapman & Heward, 1982), which has been used widely in the family–school connection. However, the U.S. Department of Education advanced telecommunications survey did not consider the "standard" use of the telephone or fax as advanced telecommunications.

[5]Strictly speaking, ThinkLink is a media server-based family–school connection study. Also, at about the same time as ThinkLink, in Birmingham, Michigan, the teacher, students, and families of two fourth-grade classrooms experimented with a video-on-demand connection (stills and audio) through a local cable provider, Booth Communications, and the IT Network of Dallas, Texas. (See Bray, 1993.)

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